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JUL 07 1998

DOE-0886-98

Mr. John Bradburne, President
Fluor Daniel Fernald, Inc.
P.O. Box 538704
Cincinnati, Ohio 45253-8704

Dear Mr. Bradburne:

SAFETY BASIS APPROACH AND STRATEGY FOR OPERABLE UNIT 4 PROJECTS

Reference: Letter, DOE-1015-97, J. Craig to J. Bradburne, "Update to the Operable Unit 4 Safety Basis," dated June 9, 1997.

Commensurate with the requested modifications to the Operable Unit (OU4) Safety Basis as identified in the above referenced letter, I am hereby directing Fluor Daniel Fernald (FDF) to implement the enclosed approach and strategy. This strategy has been evaluated by both the Department of Energy (DOE) and FDF project safety staff and, is considered to be in conformance with DOE Orders and the Implementation Plan and Basis for Interim Operations (PL-3049). The enclosed strategy addresses the review and approval process for safety documentation associated with the Hazard Category 3 facilities within the OU4 Projects.

If you have any questions regarding this matter, please contact Dave Yockman at 648-3141.

Sincerely,

Jack R. Craig
Director

FEMP:Yockman

Enclosure: As Stated

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cc w/enc:

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A. Tanner, DOE-FEMP

Operable Unit 4 Safety Basis Approach and Strategy

Objective:

Establish and maintain a single integrated safety basis covering all OU4 projects that enhances safety, reduces cost and meets the requirements of DOE Order 5480.23

Strategy:

Initial Update

FDF consolidates the Bases for Interim Operations (BIOs) for Silos 1 & 2 and Silo 3 (i.e., Appendix K & L of PL-3049) to establish a single integrated safety basis (Appendix K) for all OU4 activities. The revised Appendix K uses the format recommended by the BIOs Improvement Team. The revision is requested using the Unreviewed Safety Question Determination (USQD) process.

FDF updates the current hazard analysis to be consistent with the new path forward resulting from the dispute resolution. This action is documented in *the Hazard Analysis Report for OU4,* HAR-97-0028, (OU4 HAR).

- Action resulting from a formal written request from DOE-FEMP (ref. Letter from DOE to FDF, DOE-1015-97, 6/9/97).OU4 HAR focuses on Chapters 1-5 of DOE-STD-3009-94
- DOE will provide authorization basis per DOE-STD-3011-94

Future Updates (Maintenance)

FDF will be responsible for maintaining a single integrated safety basis (Appendix K) for all activities in OU4. Safety programs addressing DOE-STD-3009-94, Ch. 6-17 have been established by FDF and will be implemented accordingly for all projects in OU4 unless otherwise approved. Updates to the safety basis will focus on safety analysis described by the SAR preparation guidance of DOE-STD-3009-94 Chapters 1 through 5 and as defined in DOE-STD-3011-94, Appendix A, A.4.2. The updates will define ties to the FDF established safety programs.

Subcontract (i.e., AWR and Silo 3) vendors will be required to develop and submit to FDF, safety analysis, based on their design, construction, and operation, as defined in DOE-STD-3011-94, Appendix A, A.4.2 for incorporation in the OU4 Safety Basis.

DOE will review and document their approval through a Safety Evaluation Report (SER) per DOE Order 5480.23 requirement.Discussion:

Current Safety Basis

Operable Unit 4 currently has approved safety bases established for two nuclear facilities within it's boundaries (Silos 1 & 2 and Silo 3). These safety bases were established in accordance with the *Implementation Plan for Safety Analysis Reports and Technical Safety Requirements* at the FEMP-PL-3049 (*Implementation Plan*), as required by DOE Order 5480.23, 9 (b) and DOE-STD-3011-94. This plan, approved by the Assistant Secretary for Environmental Restoration, identifies the plans and schedules to implement the new requirements of DOE orders 5480.23 and 5480.22 and establishes the safety basis for interim operation (BIOs) for the 12 FEMP nuclear facilities. As FEMP nuclear facilities, the current safety bases for Silos 1 & 2 and Silo 3 are provided as Appendices K and L to the Implementation Plan, respectively. The BIOS established for Silos 1 & 2 and Silo 3 are based on the requirements identified in DOE-STD-3011-94, Appendices A & B and references the OU4 PSAR for hazard analysis.

The specific activities covered by these BIOS are as follows:

Silos 1&2

- Storage of processed waste materials
- Routine inspection and maintenance
- Radon monitoring
- Removal of decant liquid
- Operation of the Radon Treatment System

Silo 3

- Storage of processed waste material
- Routine inspection and maintenance
- Monitor Silo Integrity

Updating the Safety Basis

Initial Update:

The initial update is twofold. In order to establish a single integrated safety basis for OU4, the BIOs for Silos 1 & 2 and Silo 3 (Appendix K & L of the Implementation Plan) have been consolidated into a single BIO, Appendix K. In addition, due to the revised path forward for Operable Unit 4, which includes closure of the vitrification pilot facility, acceleration of retrieval and interim storage of Silos 1 & 2 material and retrieval and stabilization of Silo 3 material, the current hazard analysis (i.e., OU4 PSAR) for OU4 is being reevaluated and updated accordingly. This update was initiated by a formal written request from DOE-FEMP (ref. Letter from DOE to FDF, DOE-1015-97, 6/9/97) in order to revise the safety basis to be consistent with the new path

forward resulting from the OU4 dispute resolution. This update is documented in the *Hazard Analysis Report for Operable Unit 4 Silos, HAR-97-0028,*(OU4 HAR) and will be submitted to DOE along with a positive USQD requesting a change to the OU4 BIO (Appendix K).

The OU4 HAR focuses on hazard analysis (equivalent to Ch. 1-5, DOE-STD-3009 per DOE-STD-3011, Appendix A) and it's findings relative to the current activities (as covered in the existing BIOs) and future activities as defined in a conceptual manner by the new path forward. The future activities analyzed are as follows: Silo 3 small scale retrieval, Silo 3 full scale retrieval, and Silos 1 & 2 full scale retrieval. The hazard analysis of these activities is based on the current conceptual design information developed by FDF and includes an integrated hazard analysis, an evaluation of human factors, ALARA analysis, identification of SSCs and evaluation of TSRs. FDF IS NOT SEEKING APPROVAL BASIS FOR THESE NEW ACTIVITIES WITH THIS UPDATE. APPROVAL WILL BE SOUGHT WHEN PRELIMINARY DESIGN IS COMPLETE AND THE HAZARD ANALYSIS IS REVISED.

Future Updates:
FDF is in the process of establishing subcontracts with several vendors to perform significant design, construction, and operation portions of the Operable Unit 4 remediation. The subcontracts being developed require the vendors to comply with the most current DOE approved safety basis. FDF has established safety programs applicable to all activities on site that comply with the documentation requirements of DOE Order 5480.23 defined in DOE-STD-3009-94 Chapters 6-17. Since these safety programs are an integral part of the OU4 safety basis (as defined in PL-3049, IP), all subcontract vendors performing activities in OU4 will be required to implement these programs as they apply. Furthermore, to meet the requirements identified in DOE Order 5480.23 for safety analysis (i.e., DOE-STD-3009-94, Ch. 1-5), FDF, together with the selected project subcontractor, will develop and submit for DOE approval, revisions to the OU4 Safety Basis. These revisions comprise the necessary update to the approved hazard analysis documented by the OU4 HAR. A project specific HAR will be developed, incorporating the results of hazard analyses conducted in support of each respective project. The updates shall be made using the existing OU4 HAR as guidance for format and content and will make maximum use of existing analyses. Additional analysis will be restricted only to those cases where existing analyses are insufficient to establish the facility safety basis. For these reasons, project-specific HARs are extensions of the OU4 HAR and become integral to the overall OU4 safety basis. It is expected that the project-specific HAR would, at a minimum, contain information as defined by the following chapter definitions of DOE-STD-3009-94:

- Facility Description
- Hazard and Accident Analysis
- Safety Structures Systems and Components

- Derivation of Safety Basis Requirements

In addition, each project-specific HAR will also contain a discussion of how the safety analysis ties to the FDF established safety programs and whether any modifications are necessary. This documentation will provide the information necessary to update the OU4 safety basis.

FDF will be responsible for ensuring the project-specific safety documentation meets the requirements of 5480.23 prior to submitting to DOE for approval. Upon receipt of the project-specific HAR, DOE will review the HAR and all other applicable documentation to ensure compliance with DOE Order 5480.23. Once compliance is demonstrated, DOE will issue a Safety Evaluation Report (SER), per DOE Order 5480.23,7.b.(2), documenting approval of the safety documentation.

At a minimum, updates to the OU4 safety basis using the methods described above shall be conducted:

- Following preliminary design of new facilities to provide the basis for the DOE decision to authorize procurement, construction, and preoperational testing per DOE Order 5480.23, 9.a.(1).

- Following detailed design of new facilities to provide the basis for the DOE decision to accept the risk and authorize new facility operations per DOE Order 5480.23, 9.a.(2).

Benefits

This approach establishes one safety basis for the entire OU4 and results in the following benefits:

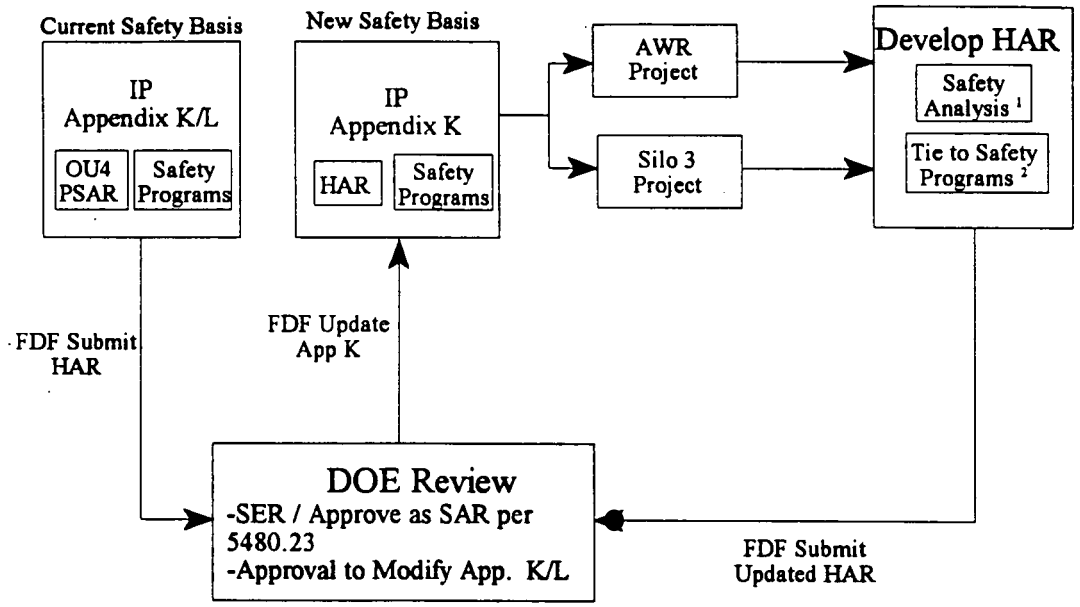
- Vendors are focused on implementing FDF's existing safety programs, instead of developing new programs from scratch, which may potentially conflict with FDF's programs and requirements.

- Vendors are focused on performing hazard analysis (as required in DOE-STD-3011-94) of their design, construction, and operations as opposed to spending significant effort meeting the rigorous documentation requirements of DOE-STD-3009-94 (17 chapter SAR).

- Project will be safer as a result of implementing a single integrated safety basis for all OU4 sub-projects versus attempting to implement several segregated safety bases for the different sub-projects in OU4.

- **Project Cost for establishing and maintaining the OU4 safety basis using this approach is estimated to be over 50% lower than establishing and maintaining separate safety bases for each of the sub-projects.**

Operable Unit 4 Safety Basis Strategy



1. Safety Analysis - Equivalent to requirement identified in DOE Order 5480.23 & DOE-STD-3009, Ch. 1-5, as defined in DOE-STD-3011, Attachment A.
2. Safety Programs- Required by DOE 5480.23 & DOE-STD-3009, Ch. 6-17.

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